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- Admitted in TX only
- \*\* Admitted in CT only

February 1, 2005

MS Amendment Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450

Re:

U.S. Patent Application No. 10/816,514

For: IMPLEMENTATION OF MICROFLUIDC COMPONENTS, INCLUDING MOLECULAR FRACTIONATION DEVICES, IN A MICROFLUIDIC

**SYSTEM** 

Inventors: John R. Gilbert, et al.

Filed: March 31, 2004 Our Ref. No.: TGZ-030

Dear Sir:

I enclose herewith for filing in the above-identified application the following:

- 1. Information Disclosure Statement;
- 2. PTO Form SB/08;
- 3. Copies of selected references cited in PTO Form SB/08 (23);
- 4. A Return Postcard.

No additional costs are believed to be due in connection with the filing of this Information Disclosure Statement. However, please charge any necessary fees in connection with the enclosed statement to our Deposit Order Account No. 12-0080. For this purpose, a duplicate of this sheet is attached.

I hereby certify that this correspondence is deposited with the United States Postal Service as first class mail in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on:

February 1, 2005

Date

Anthony A. Laurentano, Fsq./ Registration No. 38,220

Respectfully submitted,

LAHIVE & COCKFIELD, LLP

Anthony A. Laurentano, Esq. Registration No. 38,220

Attorney for Applicants



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

e the application of: John R. Gilbert, et al.

Serial No. 10/816,514

Filed: March 31, 2004

For: IMPLEMENTATION OF MICROFLUIDIC COMPONENTS, INCLUDING MOLECULAR FRACTIONATION DEVICES, IN A MICROFLUIDIC SYSTEM

Attorney Docket No. TGZ-030

MS Amendment Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Group Art Unit: 1753

Examiner: Not Yet Assigned

## Certificate of First Class Mailing (37 CFR §1.8(a))

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February 1, 2005

Date of Signature and of Mail Deposit

By:

Anthony A. Layrentano, Esq.

Registration No. 38,220 Attorney for Applicants

## **INFORMATION DISCLOSURE STATEMENT**

Dear Sir:

Applicants and their Attorney are aware of the following publications and information, listed on the attached PTO Form SB/08, and in accordance with 37 CFR §1.97 hereby submit these publications for the Examiner's consideration. A copy of each cited publication is enclosed. Copies of cited U.S. patents and U.S. publications (Reference ID Nos. A1-A30) are not enclosed with this statement. Copies of non-patent literature (Reference ID Nos. B1-C4) are enclosed in accordance with 37 CFR 1.98(a)(2).

Serial Number: 10/816,514 Page -2- Group Art Unit: 1753

This statement is not to be interpreted as a representation that the cited publications are material, that an exhaustive search has been conducted, or that no other relevant information exists. Nor shall the citation of any publication herein be construed *per se* as a representation that such publication is prior art. Moreover, Applicants understand that the Examiner will make an independent evaluation of the cited publications.

Under 37 CFR § 1.97(b)(3), no additional costs are believed to be due in connection with the filing of this disclosure. <u>If, however, a first Office Action on the merits issues in this application bearing a mailing date prior to the date of this Information Disclosure Statement</u>, please charge the appropriate fee as required under 37 CFR §1.17(p) to our Deposit Order Account No. 12-0080.

Respectfully submitted, LAHIVE & COCKFIELD, LLP

Anthony A. Lagrentano, Esq. Registration No. 38,220

Attorney for Applicants

28 State Street Boston, MA 02109 (617) 227-7400

Date: February 1, 2005

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Enclosures

PTO/SB/08a/b (08-03)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

XEX	CHARLES C.							
_	stitute for form 1449A/B/PT	0		Complete if Known				
				Application Number	10/816,514			
11	NFORMATION	DI	SCLOSURE	Filing Date	March 31, 2004			
S	TATEMENT E	3Y /	APPLICANT	First Named Inventor	John R. Gilbert			
				Art Unit	1753			
	(Use as many she	ets as	necessary)	Examiner Name	Not Yet Assigned			
Sheet	11	of	3	Attorney Docket Number	TGZ-030			

U.S. PATENT DOCUMENTS							
Examiner	Cite	Document Number	Publication Date	Name of Patentee or	Pages, Columns, Lines, Where Relevant Passages or Relevant		
Initials*	No.1	Number-Kind Code <sup>2</sup> ( if known)	MM-DD-YYYY	Applicant of Cited Document	Figures Appear		
	A1	5,565,365	10-15-1996	Glass			
	A2	5,770,029	06-23-1998	Nelson, et al.			
	A3	5,922,591	07-13-1999	Anderson, et al.			
	A4	5,922,210	07-13-1999	Brody, et al.			
	A5	5,948,227	09-07-1999	Dubrow			
	A6	5,948,441	09-07-1999	Lenk, et al.			
	A7	5,962,081	10-05-1999	Ohman, et al.			
	A8	5,993,661	11-30-1999	Ruckenstein, et al.			
	A9	6,007,775	12-28-1999	Yager			
	A10	6,042,709	03-28-2000	Parce, et al.			
	A11	6,046,056	04-04-2000	Parce, et al.			
	A12	6,051,380	04-18-2000	Sosnowski, et al.			
	A13	6,139,831	10-31-2000	Shivashankar, et al.			
	A14	6,156,527	12-05-2000	Schmidt, et al.			
	A15	6,168,948 B1	01-02-2001	Anderson, et al.			
	A16	6,187,190 B1	02-13-2001	Smith, et al.			
	A17	6,197,595 B1	03-06-2001	Anderson, et al.			
	A18	6,197,599 B1	03-06-2001	Chin, et al.			
	A19	6,221,600 B1	04-24-2001	MacLeod, et al.			
	A20	6,306,590 B1	10-23-2001	Mehta, <i>et al</i> .			
	A21	6,306,628 B1	10-23-2001	Rothschild, et al.			
	A22	6,316,266 B1	11-13-2001	Nelson			
	A23	6,429,025 B1	08-06-2002	Parce, et al.			
	A24	6,432,290 B1	08-15-2002	Harrison, et al.			
		6,440,725 B1		Pourahmadi, et al.			
		6,444,461 B1	09-03-2002	Knapp, et al.			
	A27	6,482,607 B1	11-19-2002	Reymond, et al.			
	A28	6,488,897 B2	12-03-2002	Dubrow, et al.			
		6,498,039 B2	12-24-2002	Nelson			
		6,531,283 B1	03-11-2003	Kingsmore, et al.			

FOREIGN PATENT DOCUMENTS									
Examiner	Cite	Foreign Patent Document	Publication Date	Name of Patentee or	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	_8			
Initials*	No.'	Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	MM-DD-YYYY	Applicant of Cited Document		L			
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	Date	Examiner
	Considered	Signature
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Sub	estitute for form 1449A/B/PT	0		Complete if Known		
				Application Number	10/816,514	
11	<b>IFORMATION</b>	I DI	SCLOSURE	Filing Date	March 31, 2004	
S	TATEMENT B	3Y /	APPLICANT	First Named Inventor	John R. Gilbert	
				Art Unit	1753	
	(Use as many she	eets as	necessary)	Examiner Name	Not Yet Assigned	
Sheet	2	of	3	Attorney Docket Number	TGZ-030	

nitials*	Cite	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book,	_					
- 1	No.¹	magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.						
	B1	Adam, et al. "Chemical strategies for functional proteomics." Mol Cell Proteomics. 2002 Oct; 1(10):781-90.						
	B2	Adam, et al. "Proteomic profiling of mechanistically distinct enzyme classes using a common chemotype." Nat Biotechnol. 2002 Aug; 20(8):805-9.						
	В3	Blagoev, et al. "A proteomics strategy to elucidate functional protein-protein interactions applied to EGF signaling." Nat Biotechnol. 2003 Mar; 21(3):315-8.						
	B4	Fey, et al. "2D or not 2D. Two-dimensional gel electrophoresis." Curr Opin Chem Biol. 2001 Feb; 5(1):26-33.						
	B5	Gao, et al. "Integrated microfluidic system enabling protein digestion, peptide separation, and protein identification." Anal. Chem. 2001, 73:2648-55.						
	B6	Gorg, et al. "The current state of two-dimensional electrophoresis with immobilized pH gradients." Electrophoresis. 2000 Apr; 21(6):1037-53.						
	B7	Graves, et al. "Molecular biologist's guide to proteomics." Microbiol Mol Biol Rev. 2002 Mar; 66(1):39-63.						
	B8	Gygi, et al. "Evaluation of two-dimensional gel electrophoresis-based proteome analysis technology." Proc Natl Acad Sci USA. 2000 Aug 15; 97(17):9390-5.						
	B9	Jessani, et al. "Enzyme activity profiles of the secreted and membrane proteome that depict cancer cell invasiveness." Proc Natl Acad Sci USA. 2002 Aug 6; 99(16):10335-40.						
	B10	Jiang, et al. "Integrated plastic microfluidic devices with esi-ms for drug screening and residue analysis." Anal. Chem. 2001, 73:2048-53.						
	B11	Joberty, et al. "Borg proteins control septin organization and are negatively regulated by Cdc42." Nat Cell Biol. 2001 Oct; 3(10):861-6.	Γ					
	B12	Kidd, et al. "Profiling serine hydrolase activities in complex proteomes." Biochemistry. 2001 Apr 3; 40(13):4005-15.	Γ					
	B13	Lilley, et al. "Two-dimensional gel electrophoresis: recent advances in sample preparation, detection and quantitation." Curr Opin Chem Biol. 2002 Feb; 6(1):46-50.	Γ					
	B14	Mann, et al. "Analysis of proteins and proteomes by mass spectrometry." Annu Rev Biochem. 2001; 70:437-73.	Γ					
	B15	Mann, et al. "Proteomic analysis of post-translational modifications." Nat Biotechnol. 2003 Mar; 21(3):255-61.						
	B16	Oda, et al. "Enrichment analysis of phosphorylated proteins as a tool for probing the phosphoproteome." Nat Biotechnol. 2001 Apr; 19(4):379-82.						
	B17	Ong, et al. "An evaluation of the use of two-dimensional gel electrophoresis in proteomics."  Biomol Eng. 2001 Nov; 18(5):195-205.	Ī					
	B18	Pandey, et al. "Analysis of receptor signaling pathways by mass spectrometry: identification of vav-2 as a substrate of the epidermal and platelet-derived growth factor receptors." Proc Natl Acad Sci USA. 2000 Jan 4; 97(1):179-84.						
	B19	Sydor, et al. "Protein expression profiling arrays: tools for the multiplexed high-throughput analysis of proteins." Proteome Sci. 2003 Jun 10; 1(1):3.						

Examiner	Date	
Signature	Considered	

PTO/SB/08a/b (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
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Sheet	3	of	3	Attorney Docket Number	TGZ-030	

	NON PATENT LITERATURE DOCUMENTS							
Examiner Initials	Cite No. <sup>1</sup>	· 1 · · · · · · · · · · · · · · · · · ·						
	C1	Wang, et al. "Integration of polymeric membranes with microfluidic networks for bioanalytical applications." <i>Electrophoresis</i> . 2001; 22:3857-67.						
	C2	Wang, et al. "High resolution chiral separation using microfludics-based membrane chromatography." Journal of Chromatography A 942. 2002; 115-22.						
	СЗ	Xiang, et al. "An integrated microfabricated device for dual microdialysis and on-line ESI-ion trap mass spectrometry for analysis of complex biological samples." Anal. Chem. 1999; 71:1485-90.						
	C4	Xu, et al. "A microfabricated dialysis device for sample cleanup in electrospray ionization mass spectrometry." Anal. Chem. 1998; 70:3553-6.						

<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Examiner	Date	
Signature	Considered	

<sup>&</sup>lt;sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.